Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

July 21, 2016

Smita Sumbaly
Weston Solutions, Inc
1090 King Georges Post Road
Edison, NJ 08837

RE: Project: 365A
Pace Project No.: 30186684

Dear Smita Sumbaly:
Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins for
Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

cc: Ben Nwosu, Weston Solutions, Inc.

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CERTIFICATIONS

Project: 365A
Pace Project No.: 30186684

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: 365A
Pace Project No.: 30186684

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30186684001	**N002-CC003-01**	Solid	06/14/16 11:45	06/16/16 09:45
30186684002	**N002-CC006-01**	Solid	06/14/16 11:00	06/16/16 09:45
30186684003	**N002-CC006-02**	Solid	06/14/16 11:00	06/16/16 09:45
30186684004	**N002-CC007-01**	Solid	06/14/16 13:00	06/16/16 09:45
30186684005	**N002-CC011-01**	Solid	06/14/16 14:00	06/16/16 09:45
30186684006	**N002-CC013-01**	Solid	06/14/16 14:45	06/16/16 09:45
30186684007	**N002-CC016-01**	Solid	06/14/16 15:30	06/16/16 09:45
30186684008	**RB-N-160615**	Water	06/14/16 16:30	06/16/16 09:45

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SAMPLE ANALYTE COUNT

Project: 365A
Pace Project No.: 30186684

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30186684001	**N002-CC003-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684002	**N002-CC006-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684003	**N002-CC006-02**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684004	**N002-CC007-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684005	**N002-CC011-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684006	**N002-CC013-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684007	**N002-CC016-01**	EPA 901.1	MAH	1
		EPA 901.1	MAH	9
		HSL-300	JC2	6
30186684008	**RB-N-160615**	EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		HSL-300	LAL	6

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **EPA 901.1**
Description: 901.1 Gamma Spec
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
7 samples were analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **EPA 901.1**
Description: 901.1 Gamma Spec INGROWTH
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
7 samples were analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 901.1 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
7 samples were analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 224738

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1100395)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC003-01 (Lab ID: 30186684001)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC006-01 (Lab ID: 30186684002)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC006-02 (Lab ID: 30186684003)
  - Thorium-228
  - Thorium-230

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

Analyte Comments:

QC Batch: 224738

N2: The lab does not hold TNI accreditation for this parameter.

- N002-CC006-02 (Lab ID: 30186684003)
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC007-01 (Lab ID: 30186684004)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC011-01 (Lab ID: 30186684005)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC013-01 (Lab ID: 30186684006)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- N002-CC016-01 (Lab ID: 30186684007)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236

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PROJECT NARRATIVE

Project: 365A
Pace Project No.: 30186684

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: July 21, 2016

General Information:
1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 224124

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1096884)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236
- RB-N-160615 (Lab ID: 30186684008)
  - Thorium-228
  - Thorium-230
  - Thorium-232
  - U-233/234
  - Uranium-238
  - U-235/236

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC003-01 **Lab ID: 30186684001** Collected: 06/14/16 11:45 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**3.903 ± 1.648 (1.605) C:NA T:NA**	pCi/g	06/24/16 15:27	13982-63-3	
Bismuth-212	EPA 901.1	**1.146 ± 1.595 (1.747) C:NA T:NA**	pCi/g	07/14/16 13:51	14913-49-6	
Lead-210	EPA 901.1	**0.991 ± 2.308 (3.076) C:NA T:NA**	pCi/g	07/14/16 13:51	14255-04-0	
Lead-212	EPA 901.1	**0.623 ± 0.181 (0.167) C:NA T:NA**	pCi/g	07/14/16 13:51	15092-94-1	
Potassium-40	EPA 901.1	**7.051 ± 2.401 (1.772) C:NA T:NA**	pCi/g	07/14/16 13:51	13966-00-2	
Radium-226	EPA 901.1	**1.075 ± 0.251 (0.192) C:NA T:NA**	pCi/g	07/14/16 13:51	13982-63-3	
Radium-228	EPA 901.1	**0.452 ± 0.415 (0.640) C:NA T:NA**	pCi/g	07/14/16 13:51	15262-20-1	
Thallium-208	EPA 901.1	**0.253 ± 0.115 (0.105) C:NA T:NA**	pCi/g	07/14/16 13:51	14913-50-9	
Thorium-234	EPA 901.1	**0.521 ± 1.717 (2.240) C:NA T:NA**	pCi/g	07/14/16 13:51	15065-10-8	
Uranium-235	EPA 901.1	**0.148 ± 0.102 (0.125) C:NA T:NA**	pCi/g	07/14/16 13:51	15117-96-1	
Thorium-228	HSL-300	**0.589 ± 0.167 (0.125) C:NA T:65%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.719 ± 0.181 (0.066) C:NA T:65%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.358 ± 0.113 (0.019) C:NA T:65%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.692 ± 0.232 (0.121) C:NA T:86%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.051 ± 0.073 (0.120) C:NA T:86%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.792 ± 0.251 (0.103) C:NA T:86%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC006-01 **Lab ID: 30186684002** Collected: 06/14/16 11:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.293 ± 1.984 (2.533) C:NA T:NA**	pCi/g	06/24/16 15:44	13982-63-3	
Bismuth-212	EPA 901.1	**1.586 ± 1.422 (1.468) C:NA T:NA**	pCi/g	07/14/16 14:07	14913-49-6	
Lead-210	EPA 901.1	**1.804 ± 2.744 (3.555) C:NA T:NA**	pCi/g	07/14/16 14:07	14255-04-0	
Lead-212	EPA 901.1	**0.554 ± 0.195 (0.224) C:NA T:NA**	pCi/g	07/14/16 14:07	15092-94-1	
Potassium-40	EPA 901.1	**7.062 ± 2.141 (1.358) C:NA T:NA**	pCi/g	07/14/16 14:07	13966-00-2	
Radium-226	EPA 901.1	**1.125 ± 0.276 (0.259) C:NA T:NA**	pCi/g	07/14/16 14:07	13982-63-3	
Radium-228	EPA 901.1	**0.531 ± 0.403 (0.611) C:NA T:NA**	pCi/g	07/14/16 14:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC006-01 **Lab ID: 30186684002** Collected: 06/14/16 11:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thallium-208	EPA 901.1	**0.232 ± 0.121 (0.118) C:NA T:NA**	pCi/g	07/14/16 14:07	14913-50-9	
Thorium-234	EPA 901.1	**1.570 ± 1.613 (2.372) C:NA T:NA**	pCi/g	07/14/16 14:07	15065-10-8	
Uranium-235	EPA 901.1	**0.094 ± 0.135 (0.171) C:NA T:NA**	pCi/g	07/14/16 14:07	15117-96-1	
Thorium-228	HSL-300	**0.690 ± 0.185 (0.101) C:NA T:59%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.806 ± 0.200 (0.051) C:NA T:59%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.355 ± 0.117 (0.050) C:NA T:59%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.922 ± 0.280 (0.095) C:NA T:81%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.079 ± 0.084 (0.104) C:NA T:81%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.870 ± 0.270 (0.107) C:NA T:81%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC006-02 **Lab ID: 30186684003** Collected: 06/14/16 11:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**2.612 ± 1.624 (1.873) C:NA T:NA**	pCi/g	06/24/16 15:47	13982-63-3	
Bismuth-212	EPA 901.1	**1.668 ± 1.379 (1.590) C:NA T:NA**	pCi/g	07/14/16 14:26	14913-49-6	
Lead-210	EPA 901.1	**0.151 ± 3.017 (4.138) C:NA T:NA**	pCi/g	07/14/16 14:26	14255-04-0	
Lead-212	EPA 901.1	**0.626 ± 0.220 (0.256) C:NA T:NA**	pCi/g	07/14/16 14:26	15092-94-1	
Potassium-40	EPA 901.1	**6.952 ± 2.673 (2.129) C:NA T:NA**	pCi/g	07/14/16 14:26	13966-00-2	
Radium-226	EPA 901.1	**1.141 ± 0.289 (0.161) C:NA T:NA**	pCi/g	07/14/16 14:26	13982-63-3	
Radium-228	EPA 901.1	**0.513 ± 0.383 (0.528) C:NA T:NA**	pCi/g	07/14/16 14:26	15262-20-1	
Thallium-208	EPA 901.1	**0.387 ± 0.133 (0.093) C:NA T:NA**	pCi/g	07/14/16 14:26	14913-50-9	
Thorium-234	EPA 901.1	**0.000 ± 0.926 (2.438) C:NA T:NA**	pCi/g	07/14/16 14:26	15065-10-8	
Uranium-235	EPA 901.1	**0.185 ± 0.128 (0.154) C:NA T:NA**	pCi/g	07/14/16 14:26	15117-96-1	
Thorium-228	HSL-300	**0.504 ± 0.167 (0.157) C:NA T:56%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.850 ± 0.213 (0.067) C:NA T:56%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.396 ± 0.128 (0.022) C:NA T:56%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.651 ± 0.222 (0.177) C:NA T:101%**	pCi/g	07/05/16 07:46		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC006-02 **Lab ID: 30186684003** Collected: 06/14/16 11:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
U-235/236	HSL-300	**0.028 ± 0.066 (0.109) C:NA T:101%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.919 ± 0.264 (0.083) C:NA T:101%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC007-01 **Lab ID: 30186684004** Collected: 06/14/16 13:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.482 ± 1.369 (1.895) C:NA T:NA**	pCi/g	06/24/16 16:00	13982-63-3	
Bismuth-212	EPA 901.1	**0.647 ± 1.180 (1.369) C:NA T:NA**	pCi/g	07/14/16 14:43	14913-49-6	
Lead-210	EPA 901.1	**0.000 ± 0.675 (3.904) C:NA T:NA**	pCi/g	07/14/16 14:43	14255-04-0	
Lead-212	EPA 901.1	**0.735 ± 0.202 (0.179) C:NA T:NA**	pCi/g	07/14/16 14:43	15092-94-1	
Potassium-40	EPA 901.1	**8.334 ± 2.282 (1.267) C:NA T:NA**	pCi/g	07/14/16 14:43	13966-00-2	
Radium-226	EPA 901.1	**1.147 ± 0.250 (0.252) C:NA T:NA**	pCi/g	07/14/16 14:43	13982-63-3	
Radium-228	EPA 901.1	**0.480 ± 0.354 (0.813) C:NA T:NA**	pCi/g	07/14/16 14:43	15262-20-1	
Thallium-208	EPA 901.1	**0.259 ± 0.101 (0.080) C:NA T:NA**	pCi/g	07/14/16 14:43	14913-50-9	
Thorium-234	EPA 901.1	**0.642 ± 2.095 (2.699) C:NA T:NA**	pCi/g	07/14/16 14:43	15065-10-8	
Uranium-235	EPA 901.1	**0.188 ± 0.136 (0.135) C:NA T:NA**	pCi/g	07/14/16 14:43	15117-96-1	
Thorium-228	HSL-300	**0.506 ± 0.157 (0.123) C:NA T:62%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.490 ± 0.158 (0.146) C:NA T:62%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.486 ± 0.141 (0.020) C:NA T:62%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.457 ± 0.194 (0.216) C:NA T:94%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.053 ± 0.069 (0.095) C:NA T:94%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.683 ± 0.223 (0.073) C:NA T:94%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC011-01 **Lab ID: 30186684005** Collected: 06/14/16 14:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.088 ± 1.668 (2.063) C:NA T:NA**	pCi/g	06/24/16 16:03	13982-63-3	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC011-01 **Lab ID: 30186684005** Collected: 06/14/16 14:00 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	**0.157 ± 1.750 (2.061) C:NA T:NA**	pCi/g	07/14/16 14:59	14913-49-6	
Lead-210	EPA 901.1	**0.068 ± 2.198 (3.060) C:NA T:NA**	pCi/g	07/14/16 14:59	14255-04-0	
Lead-212	EPA 901.1	**0.469 ± 0.167 (0.188) C:NA T:NA**	pCi/g	07/14/16 14:59	15092-94-1	
Potassium-40	EPA 901.1	**8.851 ± 2.326 (1.218) C:NA T:NA**	pCi/g	07/14/16 14:59	13966-00-2	
Radium-226	EPA 901.1	**0.519 ± 0.184 (0.134) C:NA T:NA**	pCi/g	07/14/16 14:59	13982-63-3	
Radium-228	EPA 901.1	**0.649 ± 0.255 (0.269) C:NA T:NA**	pCi/g	07/14/16 14:59	15262-20-1	
Thallium-208	EPA 901.1	**0.033 ± 0.131 (0.161) C:NA T:NA**	pCi/g	07/14/16 14:59	14913-50-9	
Thorium-234	EPA 901.1	**0.936 ± 1.333 (1.717) C:NA T:NA**	pCi/g	07/14/16 14:59	15065-10-8	
Uranium-235	EPA 901.1	**0.053 ± 0.119 (0.153) C:NA T:NA**	pCi/g	07/14/16 14:59	15117-96-1	
Thorium-228	HSL-300	**0.341 ± 0.156 (0.202) C:NA T:51%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.351 ± 0.159 (0.206) C:NA T:51%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.301 ± 0.112 (0.024) C:NA T:51%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.425 ± 0.181 (0.086) C:NA T:79%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.062 ± 0.081 (0.112) C:NA T:79%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.533 ± 0.207 (0.102) C:NA T:79%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC013-01 **Lab ID: 30186684006** Collected: 06/14/16 14:45 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.722 ± 1.055 (1.243) C:NA T:NA**	pCi/g	06/24/16 16:16	13982-63-3	
Bismuth-212	EPA 901.1	**0.820 ± 0.856 (1.849) C:NA T:NA**	pCi/g	07/14/16 15:15	14913-49-6	
Lead-210	EPA 901.1	**0.000 ± 1.427 (3.175) C:NA T:NA**	pCi/g	07/14/16 15:15	14255-04-0	
Lead-212	EPA 901.1	**0.335 ± 0.132 (0.155) C:NA T:NA**	pCi/g	07/14/16 15:15	15092-94-1	
Potassium-40	EPA 901.1	**7.564 ± 2.027 (1.093) C:NA T:NA**	pCi/g	07/14/16 15:15	13966-00-2	
Radium-226	EPA 901.1	**0.624 ± 0.150 (0.175) C:NA T:NA**	pCi/g	07/14/16 15:15	13982-63-3	
Radium-228	EPA 901.1	**0.395 ± 0.331 (0.392) C:NA T:NA**	pCi/g	07/14/16 15:15	15262-20-1	
Thallium-208	EPA 901.1	**0.066 ± 0.094 (0.114) C:NA T:NA**	pCi/g	07/14/16 15:15	14913-50-9	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC013-01 **Lab ID: 30186684006** Collected: 06/14/16 14:45 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Thorium-234	EPA 901.1	**1.377 ± 1.160 (1.908) C:NA T:NA**	pCi/g	07/14/16 15:15	15065-10-8	
Uranium-235	EPA 901.1	**0.148 ± 0.073 (0.082) C:NA T:NA**	pCi/g	07/14/16 15:15	15117-96-1	
Thorium-228	HSL-300	**0.213 ± 0.125 (0.180) C:NA T:57%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.348 ± 0.121 (0.056) C:NA T:57%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.307 ± 0.112 (0.056) C:NA T:57%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.409 ± 0.185 (0.203) C:NA T:89%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.082 ± 0.081 (0.056) C:NA T:89%**	pCi/g	07/05/16 07:46		N2
Uranium-238	HSL-300	**0.433 ± 0.177 (0.093) C:NA T:89%**	pCi/g	07/05/16 07:46		N2

Sample: N002-CC016-01 **Lab ID: 30186684007** Collected: 06/14/16 15:30 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.310 ± 1.917 (2.468) C:NA T:NA**	pCi/g	06/24/16 16:19	13982-63-3	
Bismuth-212	EPA 901.1	**0.722 ± 1.802 (2.079) C:NA T:NA**	pCi/g	07/14/16 15:32	14913-49-6	
Lead-210	EPA 901.1	**3.285 ± 2.642 (3.240) C:NA T:NA**	pCi/g	07/14/16 15:32	14255-04-0	
Lead-212	EPA 901.1	**0.407 ± 0.169 (0.202) C:NA T:NA**	pCi/g	07/14/16 15:32	15092-94-1	
Potassium-40	EPA 901.1	**11.593 ± 2.939 (1.457) C:NA T:NA**	pCi/g	07/14/16 15:32	13966-00-2	
Radium-226	EPA 901.1	**0.739 ± 0.218 (0.221) C:NA T:NA**	pCi/g	07/14/16 15:32	13982-63-3	
Radium-228	EPA 901.1	**0.270 ± 0.361 (0.523) C:NA T:NA**	pCi/g	07/14/16 15:32	15262-20-1	
Thallium-208	EPA 901.1	**0.046 ± 0.119 (0.153) C:NA T:NA**	pCi/g	07/14/16 15:32	14913-50-9	
Thorium-234	EPA 901.1	**0.882 ± 1.692 (2.206) C:NA T:NA**	pCi/g	07/14/16 15:32	15065-10-8	
Uranium-235	EPA 901.1	**0.184 ± 0.097 (0.111) C:NA T:NA**	pCi/g	07/14/16 15:32	15117-96-1	
Thorium-228	HSL-300	**0.325 ± 0.140 (0.153) C:NA T:47%**	pCi/g	07/05/16 12:58	14274-82-9	N2
Thorium-230	HSL-300	**0.280 ± 0.137 (0.173) C:NA T:47%**	pCi/g	07/05/16 12:58	14269-63-7	N2
Thorium-232	HSL-300	**0.221 ± 0.097 (0.026) C:NA T:47%**	pCi/g	07/05/16 12:58	7440-29-1	N2
U-233/234	HSL-300	**0.403 ± 0.159 (0.097) C:NA T:98%**	pCi/g	07/05/16 07:46		N2
U-235/236	HSL-300	**0.052 ± 0.063 (0.047) C:NA T:98%**	pCi/g	07/05/16 07:46		N2

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

Sample: N002-CC016-01 **Lab ID: 30186684007** Collected: 06/14/16 15:30 Received: 06/16/16 09:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Uranium-238	HSL-300	**0.469 ± 0.171 (0.036) C:NA T:98%**	pCi/g	07/05/16 07:46		N2

Sample: RB-N-160615 **Lab ID: 30186684008** Collected: 06/14/16 16:30 Received: 06/16/16 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.092 ± 0.420 (0.855) C:NA T:82%**	pCi/L	07/14/16 13:11	13982-63-3	
Radium-228	EPA 904.0	**-0.0307 ± 0.320 (0.752) C:81% T:84%**	pCi/L	07/12/16 12:15	15262-20-1	
Thorium-228	HSL-300	**0.056 ± 0.077 (0.129) C:NA T:67%**	pCi/L	06/24/16 20:41	14274-82-9	N2
Thorium-230	HSL-300	**0.000 ± 0.037 (0.082) C:NA T:67%**	pCi/L	06/24/16 20:41	14269-63-7	N2
Thorium-232	HSL-300	**-0.015 ± 0.035 (0.082) C:NA T:67%**	pCi/L	06/24/16 20:41	7440-29-1	N2
U-233/234	HSL-300	**0.009 ± 0.036 (0.071) C:NA T:94%**	pCi/L	06/25/16 17:10		N2
U-235/236	HSL-300	**0.009 ± 0.032 (0.052) C:NA T:94%**	pCi/L	06/25/16 17:10		N2
Uranium-238	HSL-300	**0.038 ± 0.029 (0.015) C:NA T:94%**	pCi/L	06/25/16 17:10		N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch: 224193 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 30186684001, 30186684002, 30186684003, 30186684004, 30186684005, 30186684006, 30186684007

METHOD BLANK: 1097118 Matrix: Solid
Associated Lab Samples: 30186684001, 30186684002, 30186684003, 30186684004, 30186684005, 30186684006, 30186684007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.497 ± 0.998 (1.457) C:NA T:NA	pCi/g	06/23/16 11:26	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch: 224738 Analysis Method: HSL-300
QC Batch Method: HSL-300 Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30186684001, 30186684002, 30186684003, 30186684004, 30186684005, 30186684006, 30186684007

METHOD BLANK: 1100395 Matrix: Solid
Associated Lab Samples: 30186684001, 30186684002, 30186684003, 30186684004, 30186684005, 30186684006, 30186684007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.030 ± 0.066 (0.146) C:NA T:81%	pCi/g	07/06/16 07:43	N2
Thorium-230	0.018 ± 0.048 (0.113) C:NA T:81%	pCi/g	07/06/16 07:43	N2
Thorium-232	0.009 ± 0.047 (0.066) C:NA T:81%	pCi/g	07/06/16 07:43	N2
U-233/234	0.059 ± 0.070 (0.127) C:NA T:100%	pCi/g	07/05/16 07:46	N2
U-235/236	0.013 ± 0.060 (0.083) C:NA T:100%	pCi/g	07/05/16 07:46	N2
Uranium-238	0.023 ± 0.046 (0.064) C:NA T:100%	pCi/g	07/05/16 07:46	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch:	224739	Analysis Method:	EPA 901.1
QC Batch Method:	EPA 901.1	Analysis Description:	901.1 Gamma Spec Ingrowth

Associated Lab Samples: 30186684001, 30186684002, 30186684003, 30186684004, 30186684005, 30186684006, 30186684007

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch: 225092 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30186684008

METHOD BLANK: 1102439 Matrix: Water
Associated Lab Samples: 30186684008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.033 ± 0.485 (0.948) C:NA T:91%	pCi/L	07/14/16 12:16	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch: 224124 Analysis Method: HSL-300
QC Batch Method: HSL-300 Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30186684008

METHOD BLANK: 1096884 Matrix: Water
Associated Lab Samples: 30186684008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.046 ± 0.072 (0.124) C:NA T:76%	pCi/L	06/24/16 20:41	N2
Thorium-230	-0.020 ± 0.039 (0.093) C:NA T:76%	pCi/L	06/24/16 20:41	N2
Thorium-232	0.000 ± 0.030 (0.048) C:NA T:76%	pCi/L	06/24/16 20:41	N2
U-233/234	-0.041 ± 0.058 (0.122) C:NA T:97%	pCi/L	06/25/16 17:10	N2
U-235/236	0.020 ± 0.031 (0.018) C:NA T:97%	pCi/L	06/25/16 17:10	N2
Uranium-238	0.028 ± 0.031 (0.048) C:NA T:97%	pCi/L	06/25/16 17:10	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 365A
Pace Project No.: 30186684

QC Batch: 225096 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30186684008

METHOD BLANK: 1102452 Matrix: Water
Associated Lab Samples: 30186684008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.254 ± 0.320 (0.678) C:81% T:84%	pCi/L	07/12/16 12:15	

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QUALIFIERS

Project: 365A
Pace Project No.: 30186684

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2	The lab does not hold TNI accreditation for this parameter.

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WO#:30186684

USEPA
DateShipped: 6/15/2016
CarrierName: FedEx
AirbillNo: 7765 2506 5204

OF CUSTODY RECORD
Case #: 365A
Contact Name: Peter Lisichenko
Contact Phone: 603-512-4350

No: 2-061516-100719-0006
Lab: PACE Analytical Services
Lab Contact: Justin Hensley
Lab Phone: 724-850-5600

Lab #	Sample #	Sample Date	Sample Time	Analyses	Matrix	Preservative	Lab QC	Numb Cont	Container	
	N002-CC003-01	6/14/2016	11:45	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	001
	N002-CC006-01	6/14/2016	11:00	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	002
	N002-CC006-02	6/14/2016	11:00	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	003
	N002-CC007-01	6/14/2016	13:00	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	004
	N002-CC011-01	6/14/2016	14:00	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	Y	2	Ziploc Bag	005
	N002-CC013-01	6/14/2016	14:45	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	006
	N002-CC016-01	6/14/2016	15:30	Gamma Spec (Modified), Isotopic Th and U	Concrete	None	N	1	Ziploc Bag	007
	RB-N-160615	6/14/2016	16:30	Radium-228	DI Water	HNO3 pH<2	N	1	1 L poly	008
	RB-N-160615	6/14/2016	16:30	Radium-226	DI Water	HNO3 pH<2	N	1	1 L poly	
	RB-N-160615	6/14/2016	16:30	Isotopic Thorium and Uranium	DI Water	HNO3 pH<2	N	1	1 L poly	

Special Instructions: Gamma Spectroscopy analysis for concrete samples to include: Ra-226 (In-growth), Ra-226 (186kev peak) Ra-228, K-40, Tl-208, Bi-212, Bi-214, Pb-212, Pb-214, Ra-226, Ra-228, Th-234, U-235, Pb-210, Bi-210.

Ra-226 (186 kev peak) TAT = 7 days. All other analysis TAT = 42 days.

Email results to s.sumbaly@westonsolutions.com, ben.nwosu@westonsolutions.com, and peter.lisichenko@westonsolutions.com

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
All samples/ All analyses	Weston RST	6.15.16 1230	Karen E. Hill Pace	6/16/16 09:45	

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: CAF 6/21/16 USEPA/Weston Project # 30186684

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7765 2506 5204

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Thermometer Used N/A **Type of Ice:** Wet Blue (None)

Cooler Temperature **Observed Temp** N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KH 6/16/16

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: SL	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:	✓			8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Filtered volume received for Dissolved tests			✓	12.
All containers needing preservation have been checked.			✓	13.
All containers needing preservation are found to be in compliance with EPA recommendation.			✓	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed KH / Date/time of preservation / Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	14.
Trip Blank Present:			✓	15.
Trip Blank Custody Seals Present			✓	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)